WHAT IS CLAIMED IS:

1. A process for manufacturing a semiconductor device comprising the steps of:

forming an SiOC-containing insulating film on a semiconductor substrate, and then selectively removing the insulating film,

and removing the residue generated during the previous step with a fluoride-free weak alkaline stripper.

2. A process for manufacturing a semiconductor device comprising the steps of:

forming an insulating film having a specific dielectric of 4 or less on a semiconductor substrate by CVD or sputtering, and then selectively removing the insulating film,

and removing the residue generated during the previous step with a fluoride-free weak alkaline stripper.

3. The process for manufacturing a semiconductor device as claimed in Claim 2 wherein the insulating film comprises silicon and carbon as constituent elements.

4. The process for manufacturing a semiconductor device as claimed in Claim 1 wherein the stripper has pH within a range of more than 7 and 11 or less.

5. The process for manufacturing a semiconductor device as claimed in Claim 2 wherein the stripper has pH within a range of more than 7 and 11 or less.

6. The process for manufacturing a semiconductor device as claimed in Claim 1 wherein the stripper comprises an amine.

7. The process for manufacturing a semiconductor device as

claimed in Claim 2 wherein the stripper comprises an amine.

8. The process for manufacturing a semiconductor device as claimed in Claim 1 wherein the step of selectively removing the insulating film comprises forming a resist having an opening on the insulating film, selectively removing the insulating film using the resist as a mask, and then removing at least part of the resist by ashing.

9. The process for manufacturing a semiconductor device as claimed in Claim 2 wherein the step of selectively removing the insulating film comprises forming a resist having an opening on the insulating film, selectively removing the insulating film using the resist as a mask, and then removing at least part of the resist by ashing.

10. The process for manufacturing a semiconductor device as claimed in Claim 1 further comprising a step of rinsing the product using a non-aqueous rinse agent alone after the step of removing the residue.

11. The process for manufacturing a semiconductor device as claimed in Claim 2 further comprising a step of rinsing the product using a non-aqueous rinse agent alone after the step of removing the residue.

12. A process for manufacturing a semiconductor device comprising the steps of:

forming a copper-containing metal film and then an SiOC-containing insulating film on a semiconductor substrate;

selectively removing the insulating film to form a concave such that a part of the copper-containing film is

exposed; and

removing a residue generated during selective removal of the insulating film with a fluoride-free weak alkaline stripper.

13. A process for manufacturing a semiconductor device comprising the steps of:

forming a copper-containing metal film on a semiconductor substrate and then an insulating film having a specific dielectric constant of 4 or less by CVD or sputtering,

selectively removing the insulating film to form a concave such that a part of the copper-containing film is exposed, and

removing a residue generated during selective removal of the insulating film with a fluoride-free weak alkaline stripper.

14. The process for manufacturing a semiconductor device as claimed in Claim 13 wherein the insulating film comprises silicon and carbon as constituent elements.

15. The process for manufacturing a semiconductor device as claimed in Claim 12 wherein the stripper has pH within a range of more than 7 and 11 or less.

16. The process for manufacturing a semiconductor device as claimed in Claim 13 wherein the stripper has pH within a range of more than 7 and 11 or less.

17. The process for manufacturing a semiconductor device as claimed in Claim 12 wherein the stripper comprises an amine.

18. The process for manufacturing a semiconductor device as claimed in Claim 13 wherein the stripper comprises an amine.

19. The process for manufacturing a semiconductor device as claimed in Claim 12 wherein the step of selectively removing the insulating film comprises forming a resist having an opening on the insulating film, selectively removing the insulating film using the resist as a mask, and then removing at least part of the resist by ashing.

20. The process for manufacturing a semiconductor device as claimed in Claim 13 wherein the step of selectively removing the insulating film comprises forming a resist having an opening on the insulating film, selectively removing the insulating film using the resist as a mask, and then removing at least part of the resist by ashing.

21. The process for manufacturing a semiconductor device as claimed in Claim 12 further comprising a step of rinsing the product using a non-aqueous rinse agent alone after the step of removing the residue.

22. The process for manufacturing a semiconductor device as claimed in Claim 13 further comprising a step of rinsing the product using a non-aqueous rinse agent alone after the step of removing the residue.